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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/756,942	01/13/2004	Tamer A. Elbatt	GP-303789 (2760/118)	3295

7590 09/24/2007
General Motors Corporation
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EXAMINER

HUYNH, NAM TRUNG

ART UNIT	PAPER NUMBER
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2617

MAIL DATE	DELIVERY MODE
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09/24/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/756,942

Applicant(s)

ELBATT ET AL.

Examiner

Nam Huynh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5,7-9,11-15,17 and 19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,7-9,11-15,17 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This office action is in response to amendment filed on 6/28/2007. Of the previously presented claims 1-20; claims 1, 2, 4, 7, 8, 11, 12, 17, and 19 have been amended and claims 3, 6, 10, 16, 18, and 20 have been cancelled.

Allowable Subject Matter

The indicated allowability of claims 6, 7, 10, 11, 16, 18, and 19 is withdrawn in view of the newly discovered reference(s) to Larsson et al. (US 2004/0233918).

Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1, 5, 7-9, 11-15, 17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sholander et al. (US 7,177,295) (hereinafter Sholander) in view of Larsson et al. (US 2004/0233918) (hereinafter Larsson).

Regarding claims 1, 7, 8, 9, 11, 12-15, 17, and 19, Sholander discloses a method for selecting a route within a wireless ad-hoc routing protocol (abstract). In the scope of the invention, a data packet originates at a source node and terminates at a destination node. A routing zone, which may be dynamic and can change as nodes are added to or removed from the network or can be set by a predetermined number of hops from the source node is defined or determined for the source node (identifying each neighbor node), is defined for the source node (column 7, lines 7-10). If the destination node is within the routing zone of the source node, the communication link is established using a route generated by the proactive routing protocol (proactive border node broadcast protocol). If the destination is outside the routing zone, the communication link is established using a reactive routing protocol (on-demand border node broadcast protocol) by generating a route request that is sent to each border node, which in turn broadcasts the request outside the routing zone to locate the destination node (columns 4, 5, lines 59-67, 1-8). However, Sholander does not explicitly disclose selecting at least one neighbor node as a border node based on a geographic location of the neighbor node and geometric criteria by determining at least one neighbor node having both a maximum distance from the source node and a minimum distance to a one of the compass point directions North, South, East, and West; and broadcasting the information from the source node, wherein the broadcast information identifies the

selected at least one border node and a communication destination. Larsson discloses multi-user diversity forwarding (title). In the scope of the invention, a transmitting node (source node) transmits a packet to a destination node using a forwarding algorithm in a multi-hop network. The transmitting node utilizes this forwarding algorithm (page 4, paragraph 63) and determines the general forwarding direction (compass point direction) for the packet to be sent and selects a number of potential relay nodes that give a forward progress in this general direction (selecting at least one neighbor node as a border node based on geographic location). The transmitting node typically transmits the packet to the relay node with maximum forward progress, which means that the packet is transported the longest projected distance (maximum distance from the source node) in the direction of the destination node of the packet (minimum distance to a compass point) (page 7, paragraph 95). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Sholander, to include the forwarding algorithm taught by Larsson, in order to optimize link performance in conjunction with selection of which packet to transmit and which relay node to use.

Regarding claim 5, the routing zone of Sholander is not limited to the number of hops from the source node and therefore is selectable.

4. Claims 2, 4, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sholander et al. (US 7,177,295) (hereinafter Sholander) in view of Larsson et al. (US 2004/0233918) (hereinafter Larsson) as applied to claims 1, 12, and 17 above, and further in view of Ahmed et al. (US 7,006,453) (hereinafter Ahmed).

Regarding claims 2 and 13, the combination of Sholander and Larsson discloses the limitations set forth in claim 1, but does not explicitly disclose that the source node polls each neighbor node for position information and generates a table identifying the location of each neighbor node. Ahmed discloses a geometry-based routing protocol (GRP) that is used to route traffic from a source node to a destination node (abstract). In the scope of the invention, each node periodically transmits to its direct neighbors its GPS location information (position information/geographic location) and applies computational geometry (geometric criteria) to the collected GPS information to select those surrounding nodes that facilitate geometric routing and sets up point-to-point links with the selected nodes and forms a neighbor table (column 6, lines 55-59). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Sholander and Larsson to allow the source node to receive position information from its neighbors, as taught by Ahmed, in order to route data as a function of the distance to the location of a destination node.

Regarding claim 4, Ahmed discloses that if a destination node (node 205) is not part of the local topology for a source node (node 105), the source node performs the GRP to identify the closest node in its local topology (selecting a border node based on geographic location and geometric criteria). Once the node closes to the destination node is identified, the source node sends the packet to this particular node (broadcasting the information from the source node), which then performs the GRA (invoking a border node broadcast protocol at the border node/destination query

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message) using its local topology table to route the data to the destination node (column 5, lines 5-31).

Response to Arguments

5. Applicant's arguments with respect to claims 1, 2, 4, 5, 7-9, 11-15, 17, and 19 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mahonen (US 2005/0117535)


Gorday et al. (US 2004/0192331)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nam Huynh whose telephone number is 571-272-5970. The examiner can normally be reached on 8 a.m.-5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NTH
9/13/07


GEORGE ENG
SUPERVISORY PATENT EXAMINER